



Agency Priority Goal | Action Plan | FY 22 – Q2

Monitor Antimicrobial Resistance in Animal Health Pathogens through the National Animal Health Laboratory Network

Goal Leader(s):

Sarah Tomlinson, DVM, Associate Deputy Administrator, Strategy and Policy, APHIS Veterinary Services (VS)

Elizabeth Lautner, DVM, MS, Associate Deputy Administrator, Diagnostics and Biologics, APHIS VS

Goal Overview

Goal statement

- Establish a surveillance program within the National Animal Health Laboratory Network (NAHLN) to monitor antimicrobial resistance (AMR) profiles in animal pathogen to enhance the Nation's early detection of, response to, and recovery from animal health emergencies. By September 2023, USDA will establish a long-term AMR surveillance program with at least 30 laboratories participating annually.

Problem to Be Solved

- Antimicrobial resistance poses a threat to disease control throughout the world and is a primary concern for human and animal health.
- There is a gap in understanding of AMR patterns in bacteria that cause disease in animals and having national-level information on AMR in animal health pathogens is an important component of addressing AMR at the Federal level.

What Success Looks Like

- Collecting and providing AMR data via public-facing reports and dashboards will provide transparency to USDA's efforts to addressing AMR and support USDA's goal of ensuring America's agricultural system is equitable, resilient, and prosperous by addressing threats to animal health posed by AMR.
- AMR data collected through the NAHLN AMR surveillance program will be utilized as a part of a unified Federal response when AMR profiles of concern are detected by a One Health partner agency (USDA, Food and Drug Administration (FDA), or Centers for Disease Control and Prevention) and .
- Clinicians will use the AMR data in making the best treatment decisions.

Goal target(s)

In the table below, please repeat the key metrics included in the goal statement (previous slide) that will be used to track progress.

Please update this column each quarter.

Achievement statement Repeat the achievement statement from the goal statement on the previous slide		Key indicator(s) A "key performance indicator" measures progress toward a goal target	Quantify progress These values enable us (and you!) to calculate % complete for <u>any</u> type of target*			Frequency When is there new data?
By...	We will...	Name of indicator	Target value	Starting value**	Current value	Update cycle
12/31/2022	Monitor trends in AMR in animal pathogens, identify new or emerging AMR profiles, and help monitor continued usefulness of antimicrobials over time	Number of participating laboratories	30 laboratories participating in program	0	31	Annually, Q2 (FY)
		Number of isolates with antimicrobial susceptibility testing (AST) data	5000/year	0	962 (cumulative total)	Quarterly
		Number of isolates with whole genome sequencing performed	500/year	0	137 (cumulative total)	Quarterly

* Even qualitative targets! If the target is to achieve a qualitative outcome, quantify progress this way: 1="Yes, we achieved it", 0="No, not yet"

** As of 10/1/2021

Goal Team

VS Strategy & Policy (S&P)

Senior Lead: Sarah Tomlinson (Executive Champion)

Team Lead: Chelsey Shivley (VS AMR Coordinator)

VS Diagnostics & Biologics (D&B)

Senior Lead: Beth Lautner (D&B Associate Deputy Administrator)

Team Lead: Beth Harris (NAHLN Associate Coordinator)

Agency Partners: Participating NAHLN laboratories;
FDA Center for Veterinary Medicine Veterinary Laboratory Investigation and Response Network (VetLIRN)

Program and Policy Development (PPD)

Senior Lead: Eric Hoffman (Deputy Chief, Budget and Program Analysis, PPD)

Team Leads: Allison Boehm (PPD Program Analyst), Shaun Luber (PPD Program Analyst)

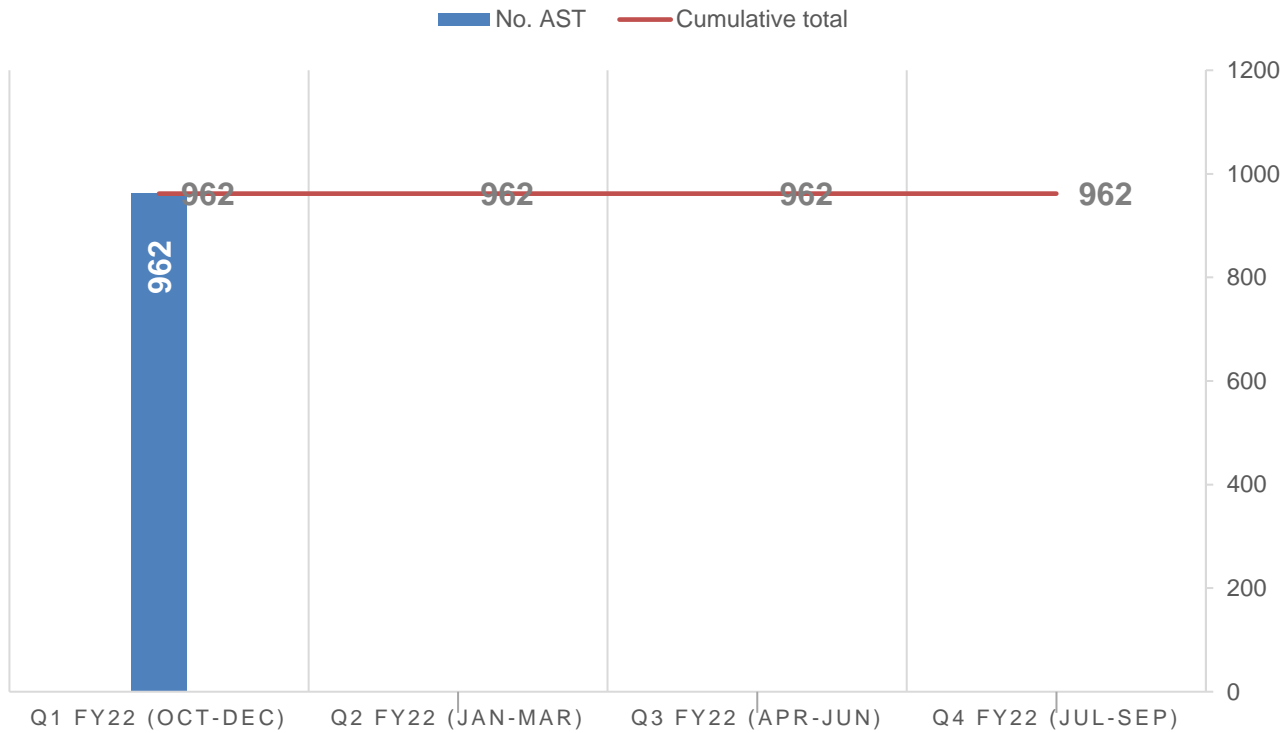
Goal Strategies

Strategies

- *Laboratories will be provided the opportunity to enroll in this surveillance project annually during Q1 of each fiscal year, and they enroll for the upcoming calendar year. [There are 60 NAHLN laboratories; only 31 currently have the necessary equipment for AMR sampling. The NAHLN laboratories conduct testing for emergency programs including responding to outbreaks of highly pathogenic avian influenza; emergency needs may impact the number of participating laboratories or the level AMR sampling conducted.]*
- *Participating laboratories will submit antimicrobial susceptibility data to the NAHLN program on a monthly basis. The NAHLN program will use this data to update our external dashboard every month, providing near-real time information to the public.*
- *Whole genome sequencing data will be submitted to the NAHLN BioProject hosted through the National Center for Biotechnology Information (NCBI) on a quarterly basis, with uploaded data being released immediately for public use.*

Key indicators

ANTIMICROBIAL SUSCEPTIBILITY TEST (AST) RESULTS - FY2022



Key milestones

- Calendar year 2022 is the final year of the NAHLN AMR pilot surveillance program.
- 31 laboratories have been enrolled for Year 5 (January - December 2022).
- Over the next year, APHIS will gather stakeholder input for the transition to the long-term program and continue developing a public-facing dashboard to communicate ongoing surveillance data.
- Stakeholder meetings began February 15, 2022.

Milestone Summary					
Key Milestone	Milestone Due Date <i>[e.g., Q2, FY 2017]</i>	Milestone Status <i>[e.g., Complete, On-Track, Missed]</i>	Change from last quarter <i>[optional column]</i>	Owner <i>[optional column]</i>	Comments <i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
Stakeholder meetings to gather input on modifications from pilot to full time program	By Mar 31, 2022	On track			APHIS held an initial meeting to engage stakeholders on Feb 15, 2022. 22 participants attended, representing 11 different stakeholder groups. Next meeting will be Mar 15 to discuss proposed technical changes to the program.
Stakeholder report developed to summarize input from meetings and long-term plan for surveillance program	By Sep 30, 2022	On track			
AMR surveillance pilot complete	Dec 31, 2022	On track			31 laboratories are enrolled for Y5 of pilot.
Initiate long-term surveillance program	By Jan 31, 2023	On track			
Tableau dashboard updated to include AMR genes identified by sequencing	By Dec 31, 2023	On track			The AMR database was modernized to support future development and enhancements in the VS Data Integration Services (DIS) platform.

Narrative – FY 22 Q2

- *APHIS completed Year 4 of the NAHLN AMR surveillance pilot on December 31, 2021.*
- *Accomplishments for Year 4 include enrolling 30 laboratories, launching a public-facing dashboard on the NAHLN website that provides near-real time susceptibility testing data for six animal species and eight different bacterial pathogens, and completing the annual report for Year 3, highlighting trends in antimicrobial resistance data since the pilot's inception in 2018.*
- *31 laboratories have been enrolled for the final year of the pilot, which runs Jan-Dec, 2022.*
- *Concerns regarding laboratory supply chain issues and personnel shortages caused by the continuing SARS-CoV-2 pandemic may impact the data numbers provided by laboratories during 2022, possibly beyond. Laboratories have reported supply chain issues with sequencing supplies and plasticware in December.*
- *The number of isolates submitted in quarter 1 was slightly lower than expected, possibly due to supply chain issues. Starting in quarter 2, APHIS raised the cap on the number of isolates each laboratory can submit to the program to increase the number of samples collected and help ensure that the target of 5,000 isolates is met and that APHIS has sufficient data for representative trend analysis across the United States.*

Data accuracy & reliability

Information on how antimicrobial susceptibility testing (AST) data is generated and standards/quality control methods used for this data is found in the [Year 1](#) report, located on the NAHLN website.

Laboratories provide monthly AST data to APHIS Veterinary Services, which is reviewed for accuracy and completeness prior to uploading to an internal APHIS VS database. From there, APHIS VS processes the data based on current Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility tests and the data is inserted into the [Tableau dashboard](#). APHIS VS and Marketing and Regulatory Programs Information Technology maintains this database and the corresponding software APHIS VS uses to manipulate the data. APHIS VS maintains the Tableau dashboard, which is accessible by the public. APHIS' National Veterinary Services Laboratories (NVSL) or participating laboratories generate whole genome sequencing data. Participating laboratories submit data and APHIS VS evaluates it for minimum quality standards prior to being uploaded to the National Institutes of Health NCBI.

Additional information

Contributing Programs

Organizations:

- This program is supported by participating NAHLN laboratories from the following states: AL, CA, CO, FL, GA, IA, IL, IN, KS, KY, LA, MI, MN, MO, MS, NC, ND, NE, NY, OH, PA, SD, TN, TX, WA, WI, and WY.

Program Activities:

- This program directly contributes to the [2020-2025 National Action Plan for Combating Antibiotic-Resistant Bacteria](#). It contributes to Goal 2 (Strengthen National One Health Surveillance Efforts to Combat Resistance), Objectives 1.1 (expand surveillance through existing systems to monitor antibiotic resistance from multiple sources across One Health) and Objective 1.2 (increase whole-genome sequencing and antibiotic resistance phenotypic and genotypic testing in laboratory networks for antibiotic-resistant pathogens listed in CDC's 2019 AR Threats Report and upload sequenced data to the National Institutes of Health (NIH) National Center for Biotechnology Information (NCBI) at the National Library of Medicine or to another approved, secure, and widely accessible databases).

Policies:

- This program directly contributes to the [USDA AMR Action Plan](#). It contributes directly to Objective 2 (antibiotic drug susceptibility in food animals and meat and poultry) by providing national-level data on antibiotic susceptibility testing of selected animal pathogens.

Other Federal Activities:

- Data collected from companion animals as part of the NAHLN AMR surveillance program is also integrated with similar data collected by FDA VetLIRN AMR surveillance program, and combined data are reported through FDA's NARMS (National Antimicrobial Resistance Monitoring System) website.

Stakeholder / Congressional Consultations

APHIS will host regularly scheduled meetings/webinars with participating NAHLN laboratories and other external stakeholders to obtain input on the structure and interface of this AMR surveillance program with other federal surveillance programs. APHIS will incorporate input and concerns identified during these meetings, where appropriate, to improve utility of data provided and to improve efficiency of the program for participating laboratories.